

### Remarks

Claims 1-40 are pending in this application.

Applicant has amended the specification and has proposed drawing corrections to conform to the requirements expressed by the examiner. As now amended, and proposed to be amended, it is respectfully submitted that the specification and drawings are in compliance with the pertinent requirements.

Claim 8 has been amended to correct an obvious typographical error.

Applicant acknowledges with appreciation the allowance of Claims 36-40 and the indication of the allowability of claims 6 and 7, suitably amended.

Applicant's Claims 1, 4 and 8-10 stand rejected under 35 U.S.C. 102(b) as being anticipated by *Bradley*. This rejection is respectfully traversed.

Applicant's Claim 1 calls for a first closure mechanism for moving the first closure member from the closed to the open position. The corresponding *Bradley* component (210) referred to by the examiner acts in the reverse way in that it moves the closure member from the open to the closed position. The distinction bears on an important feature of applicant's invention.

As described in the *Bradley* specification, and as is readily apparent from inspection of Figure 2C of *Bradley*, the downward movement of the "vent valve means" 210 sealingly isolates the vent opening 220 from the central opening 74 extending through the plug assembly. See column 8, line 38 *et seq* of *Bradley*. *Bradley* closes the vent 210 to prevent the pressure used to release the plugs from being exerted on inner portions of the plugs themselves. See column 3, lines 36 *et seq* of *Bradley*.

Applicant expressly desires the application of the release pressure to the full surface area of the plugs. See page 8, line 19 *et seq* of applicant's specification stating "Another important feature of the present invention is that substantially the entire cross-sectional seal area of the wiper plug is exposed to differential pressure during the pressure induced deployment of a plug from the supporting mandrel. Systems that apply a pressure differential over a more limited area produce a smaller separation force."

It may be noted by reference to Figure 2C of the *Bradley* reference that the pressure differential seeking to separate the bottom plug from the remainder of the assembly is applied

only across the limited cross-sectional area represented within the outer diameter contact area of the 0-ring (seal means) 206. By contrast, the pressure differential working to separate applicant's lower plug from the assembly works across the significantly larger cross sectional area defined within the casing 15 reduced only by the cross sectional area of the mandrel 17. The result is that a greater deployment force is exerted on applicant's lower plug than is exerted on the *Bradley* lower plug by the same differential pressure.

In view of the foregoing, it is respectfully submitted that applicant's Claim 1 and Claims 4 and 8-10, directly or indirectly dependent therefrom, distinguish over the *Bradley* reference and allowance of such claims over the reference is respectfully solicited.

With respect to the rejection of applicant's claims 1, 4 and 8-10 under 35 U.S.C. based on the single Patent to *Bradley*, it is respectfully submitted that rejection of the claims based on a single reference is not justified. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir.1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Applicant has pointed out the distinction between the limitations in applicant's claims and the teachings of the single Patent to *Bradley* that has been applied under 35 U.S.C. §102. Clearly, *Bradley* neither teaches nor even remotely suggests the invention as defined by rejected claims 1, 4 and 8-10 and allowance of such claims over the reference is therefore respectfully requested.

Applicant's claims 2, 3, 11, 12, and 15-34 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Bradley* in view of *Callahan et al* (*Callahan*). This rejection is respectfully traversed.

In applying the *Bradley* and *Callahan* teachings to applicant's claims 2 and 3, the examiner states that *Bradley* discloses all limitations of the claims except for a one-way check valve for sealing a central opening through the first plug when the plug and seal are displaced from the mandrel. *Callahan* is cited for its teaching of a one-way check valve for sealing the central opening of a plug when the plug and its seal are displaced down the wellbore tubular.

Claims 2 and 3 are directly or indirectly dependent from Claim 1 and it is therefore respectfully submitted such claims are distinguishable over the *Bradley* patent for the reasons already advanced with regard to distinguishing Claim 1 over *Bradley*. It is further respectfully submitted that the proposed combination of the *Bradley* and *Callahan* references also fails to respond to the limitations of applicant's claims and accordingly, it is respectfully submitted that such claims are patentably distinct over the combination of the references.

With regard to the use of the *Callahan* flapper valve in the *Bradley* device, it is respectfully submitted that there is no suggestion in either reference to make such a combination and, even if made, the resulting device would be inoperative and/or would not be suitable for the intended purpose of either inventor. Thus, *Callahan* illustrates a flapper valve designed to prevent reverse flow of fluids into the well casing. If such a flapper valve is to be employed in the *Bradley* device, *Callahan* teaches that the valve would have to be placed over the bottom opening through the lower end of the pin sleeve 202 to prevent reverse flow back up into the casing string above the plugs.

Applicant's Claim 2 calls for the one-way valve to seal a central opening through the first plug when the first plug is displaced from the mandrel whereby the first plug forms a seal within the well tubular for isolating the first and second pressure areas. Because the pressure in the area between the two plugs must be higher than the pressure in the area below the bottom plug in order to displace the first plug from the mandrel, and because the *Callahan* flapper valve opens when the pressure in the area between the two plugs is higher than the pressure below the bottom plug, the reverse flow flapper valve of *Callahan* clearly cannot operate to meet the limitations of applicant's Claim 2. In this regard, it is respectfully submitted that the suggestion to mount a one-way flapper valve to isolate the first and second pressure areas in the claimed environment is found only in applicant's specification and is not found in either of the cited references.

Applicant's independent Claim 11 calls for a release mechanism carried by the mandrel. The release mechanism is operable with a release mechanism actuator to actuate the release mechanism to release the first plug from the mandrel. Claim 11 also calls for a flow passage closure device that is separate from the release mechanism actuator and is carried by the first plug. The claim calls for the first flow passage closure device to be operable when the first plug is released from the mandrel to seal the flow passage extending through the first plug.

It is respectfully submitted that none of the cited references teach the combination defined by applicant's Claim 11. If the *Bradley* assembly of ball 256, sliding sleeves, seal rings and shear pins are considered to be carried by the mandrel and to include the release mechanism actuator and the release mechanism, it is evident that the *Bradley* assembly lacks a first flow passage closure device that is separate from the release mechanism. Clearly, the ball 256 of *Bradley*, which corresponds most closely to applicant's recitation of a closure device, is not separate from the release mechanism actuator but is in fact an integral part of such structure. The distinction manifests itself in the difference between the *Bradley* structure and applicant's structure in that the ball 256 of the reference device is carried to the bottom of the casing with the displaced plug whereas the ball of applicant's invention remains with the mandrel. See applicant's specification at page 8, line 3 *et seq* stating "An important feature of the present invention is the elimination of the use of a ball or dart that must remain in the wiper plug to act as the flow closure element for the deployed wiper plug."

Regarding the proposed combination of the *Bradley* and *Callahan* teachings, as noted previously, such a combination is contrary to the teachings of the two references and would fail to produce an operative and/or suitable device. Moreover, even if the proposed combination were to be made, the resulting device would fail to respond to the limitations of applicant's claims. Thus, as noted, the provision of *Callaghan's* reverse flow flapper valve in the *Bradley* device would not function to maintain a pressure differential that would permit the plug to be moved through the casing in the desired manner.

To the extent of that applicant's claims 12 and 21 depend from independent Claim 11, it is respectfully submitted that such claims are distinguishable over the proposed combination of the *Bradley* and *Callahan* references for reasons hereinbefore set with regard to Claim 11. Accordingly, it is respectfully submitted that applicant's claims 11, 12 and 21 are patentably distinct over the proposed combination of the references and allowance of such claims over the references is respectfully solicited.

Applicant's Claim 26 depends from Claim 14, which in turn depends from Claim 12. Claim 26 distinguishes over the cited art for the previously stated reasons that Claim 11 distinguishes over such art. Claim 14 adds the further limitation to independent Claim 11 that the mandrel and the release mechanisms and the release mechanism actuators are retrievable to

the well surface with a running tool after the first and second plugs are released from the mandrel. Neither *Bradley* nor *Callahan* teach retrieval of components as recited in applicant's Claim 14. As clearly noted in each of the references, devices used to release the plugs from their connection with the running tool remain with the plugs.

To the extent that applicant's claims 15 and 26 also depend from independent Claim 11, it is respectfully submitted that such claims distinguish over the proposed combination of the references for the reasons already submitted. It is also respectfully submitted that claims 15 and 26 further distinguish over the proposed combination of references to the extent that additional limitations are being added by the claims.

In applying the *Callahan* reference to applicant's claims 15, 26 and 33, the examiner notes that the one-way check valve of *Callahan* is a flapper valve. Applicant's claims 15 and 26 are system claims that depend directly or indirectly from independent system Claim 11. Applicant's method Claim 33 depends from Claim 32, which depends from Claim 31, which in turn depends from independent method Claim 30. The examiner has applied the *Callahan* reference to this method claim 33 as well as to applicant's system claims 15 and 26.

It is respectfully submitted that applicant's claims 15 and 26 distinguish over the combination of the *Bradley* and *Callahan* references for the reasons hereinbefore advanced with regard to the parent Claim 11. Claims 15 and 26 further distinguish over the proposed combination of the references with the limitations that are added to the combination defined by the claims. Applicant's response to the examiner's explanation of the application of the prior art to Claim 33 will be found in applicant's following response to the rejection of independent method claim 30.

With regard to applicant's claims 16, 17, 27, 29, and 32, the examiner contends that the flapper valve of *Callahan* would include a seal on the valve seat as well as a seal on a flapper in order to form a fluid tight seal thus preventing fluid flow therethrough. The examiner further states that when the flapper valve was in its closed position, the seals would be protected from the wellbore environment. These constructions of the *Callahan* reference as applied to applicant's claims are respectfully traversed.

Applicant's claims 16, 17, 27, 29 and 32 depend directly or indirectly from independent Claim 11. For the reasons hereinbefore advanced with regard to Claim 11, it is respectfully

submitted that the claims dependent therefrom are also distinguishable over the art cited against Claim 11.

Applicant's Claim 16 recites that the sealing surface seat and the sealing component that engage and seal to close the wiper plug flow passage are protected from erosion when the plug is carried by the mandrel. It is respectfully noted that the flapper 59 and flapper seat of *Callahan* are exposed to erosion each time fluid flows through the cementing assembly. In view of the fact that the flapper and seat are thus exposed to erosion while the first plug is carried by the mandrel, it is respectfully submitted that such components are not protected from erosion.

Similarly, with respect to Claims 17 and 27, it is respectfully submitted that the *Callahan* sealing surfaces are not protected from erosion caused by fluids flowing through the well casing before the plugs of the *Callahan* assembly are released from the mandrel.

Applicant's method Claim 30 calls for the step of applying fluid pressure from the well surface to open a flow passage from the mandrel into the casing and unlocking one of the wiper plugs from the mandrel. The examiner correctly acknowledges that *Bradley* does not show opening a flow passage from the mandrel to the casing upon the application of fluid pressure on the closure mechanism. While the *Callahan* reference does in fact teach the opening of a flow passage from the mandrel into the casing, such action is for the purpose of applying cement to the area above a plug, as also acknowledged by the examiner.

It is respectfully submitted that *Bradley* expressly precludes the desirability of opening a passage from the mandrel into the casing. As previously noted, the *Bradley* motion closes such a passage. *Callahan*, on the other hand, expressly requires such an opening in order to position cement above the plug. It is respectfully submitted that there is no suggestion in either reference to move a sleeve axially through a running tool for opening a flow passage from the mandrel into the casing as recited in applicant's Claim 30. It is also respectfully submitted that the proposed combination of the *Bradley* and *Callahan* references would render the devices of the references inoperable and/or unsuited for the intended purposes expressed by their inventors. Moreover, it is respectfully submitted that the combination of method steps recited in applicant's Claim 30 is taught only in applicant's specification and is neither taught nor suggested in any of the cited references nor in any appropriate combination of such references. Finally, it is further respectfully submitted that even if the *Bradley* teaching were to be modified by *Callahan* in the

manner proposed in rejecting the claim, the resulting combination would fail to respond to the limitations of applicant's Claim 30.

To the extent that applicant's method claims depend from Claim 30, it is respectfully submitted that such claims distinguish over the proposed combination of the references for reasons hereinbefore recited as well as for the added limitations that such dependent claims bring to the combination. Accordingly, it is respectfully submitted that all of applicant's method claims are patentably distinct over the proposed combination of references and allowance of such claims is earnestly solicited.

Applicant's Claim 5 stands rejected under 35 U.S.C. 103(a) as being unpatentable over *Bradley* in view of *McMullen*. This rejection is respectfully traversed.

Claim 5 depends from Claim 1, which has previously been distinguished over the teachings of the *Bradley* reference. Claim 5 adds the limitation that the mandrel is retrievable to the well tubular following displacement of the first plug. The examiner contends that *Bradley* discloses all of the limitations of Claim 5 except for retrieving the mandrel once the plug has been displaced. *McMullen* is cited at column 7, lines 9-11 for teaching the removal of the mandrel of an upper plug after the plug has been displaced. In rejecting Claim 5, the examiner contends it would be obvious to have retrieved the mandrel of *Bradley* as taught by *McMullen*.

Applicant respectfully submits that *Bradley* does not disclose all of the limitations of Claim 5 for the reasons previously asserted with regard to the application of *Bradley* to applicant's Claim 1, from which Claim 5 depends.

Applicant further respectfully submits that neither *Bradley* nor *McMullen* suggest or teach a well tool having the limitations of Claim 1 wherein the mandrel is retrievable to the well tubular following displacement of the first plug as recited in Claim 5.

*Bradley* and *McMullen* operate in similar manners with regard to displacement of the first plug from the plug launching systems each describes. Neither system retrieves a mandrel through the well tubular following displacement of the first plug as recited in applicant's Claim 5. It is respectfully noted that the cited *McMullen* description (column 7, lines 9-11) does not disclose retrieving a mandrel after the plug has been displaced. To the contrary, as explained at column 6, lines 65 *et seq* of *McMullen* "As guide tube 300 is also threaded to release adapter 120, it will move downward inside inner casing 52 with top plug 56, and will normally remain in its

extended position until top plug 56 encounters bottom plug 58 at the float collar or shoe at the bottom of the casing 52..." The quoted portions of *McMullen* make it clear that the components characterized as a mandrel in the rejection of applicant's Claim 5 are clearly sent to the bottom of the well and are not retrieved following displacement of a plug.

In view the foregoing, it is respectfully submitted that if the proposed combination of the *Bradley* and *McMullen* devices were to be made, the resulting device would be unsuited for the intended purpose of either of the reference patents and/or would be inoperable. Moreover, it is also respectfully submitted that the proposed combination of references would not produce a structure providing response to the limitations of applicant's Claim 5 for the reasons hereinbefore presented. Accordingly, it is respectfully submitted that applicant's Claim 5 is patentably distinct over the proposed combination of references and allowance of such claim is respectfully solicited.

Applicant's Claims 13, 14, and 35 stand rejected under 35 U.S.C. 103 (a) as being unpatentable over *Bradley* in view of *Callahan* as applied to Claim 11 and further in view of *McMullen*. This rejection is respectfully traversed. It is respectfully noted that the distinctions and arguments hereinbefore presented relating to the proposed combination of the *Bradley*, *Callahan* and *McMullen* references are applicable to the presently proposed combination of such references in rejecting claims 13, 14 and 35. Accordingly, it is respectfully submitted that these claims are patentable over the teachings of the cited references or any appropriate combination thereof and allowance of such claims is respectfully requested.

With respect to the rejection of applicant's claims under 35 U.S.C. §103 based on the combined teachings of multiple prior art references, it is respectfully submitted that the proposed combination of prior art teachings does not render applicant's claims unpatentable. Moreover, it is respectfully submitted that the only suggestion for combining the features of the prior art in the manner suggested in the rejection of applicant's claims is derived from applicant's specification and not the prior art.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP §2143 - §2143.03 for decisions pertinent to each of these criteria.



"To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)

Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 16 USPQ2d at 1432.). See also *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992).

Applicant has also pointed out that the proposed combination of prior art teachings suggested in rejecting applicant's claims would render the individual devices of the references unsuited for their intended usage.

If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)

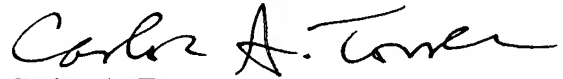
If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

It is also been noted by applicant that even when the prior art teachings are combined in the manner suggested in rejecting applicant's claims, the resulting combination fails to meet all of the limitations of applicant's claims.

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 165 USPQ 494, 496 (CCPA 1970).

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance and such action is respectfully solicited.

Respectfully submitted,



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I hereby certify that this correspondence and all referenced enclosures are being deposited by me with the United States Postal Service as Regular Mail in an envelope addressed to the Assistant Commissioner of Patents, Amendments., Alexandria, VA 22313-1450 on **October 22, 2003**.

By: \_\_\_\_\_

Martha Jeffers

